REMARKS

Favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claim 21 has been amended to incorporate the subject matter of claim 22, except that the range for the titanium metal has been retained as set forth in claim 21. Claim 25 has been amended to insert the subject matter of claim 26, except that the range of the titanium metal has been retained as set forth in claim 25.

It is believed that the rejection of claims 21, 25 and 28 under 35 USC 103 as obvious over Senes et al. in view of Muenger et al. has been overcome by these amendments.

Claims 21 and 25 have been amended to recite "cobalt metal", "titanium metal", "aluminum metal", "potassium metal", "calcium metal" and "magnesium metal".

The amendment suggested by the Examiner on page 4 of the Action have also been made to the claims.

In view of the foregoing, the rejection of the claims under 35 USC 112, second paragraph, as well as the informalities noted by the Examiner in the claims are believed to be overcome.

In view of the foregoing, it is believed that the application is now in condition for allowance, and such allowance is solicited.

Respectfully submitted,

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22. (New) The ammonia synthesis catalyst of claim 21, wherein cobalt metal is present at a concentration of from 0.1 to 3.0 wt%; titanium metal is present at a concentration of from 0.14 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; magnesium is present at a concentration of from 0.3 to 0.5 wt%, and the balance being iron oxides with natural impurities.

23. (New) The ammonia synthesis catalyst according to claim 21, wherein the iron oxides have an atomic ratio of Fe^{2+}/Fe^{3+} of between 0.5 to 0.65.

24. (New) The ammonia synthesis catalyst of claim 21, wherein cobalt metal is present at a concentration of from 0.35 to 3.0 wt%; titanium metal is present at a concentration of from 0.38 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; magnesium is present at a concentration of from 0.3 to 0.5 wt%, and the balance being iron oxides with natural impurities.

25. (New) An ammonia synthesis catalyst, comprising iron oxides and promoters, wherein the promoters comprise both a cobalt oxide and a titanium oxide, in addition to an aluminum oxide, a potassium oxide, a calcium oxide and a magnesium oxide, wherein cobalt metal is present at a concentration of from 0.1 to 3.0 wt%, and titanium metal is present at a concentration of from 0.1 to 1.0 wt%.

26. (New) The ammonia synthesis catalyst of claim 25, wherein titanium metal is present at a concentration of from 0.14 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; and magnesium is present at a concentration of from 0.3 to 0.5 wt%.

27. (New) The ammonia synthesis catalyst of claim 25, wherein cobalt metal is present at a concentration of from 0.35 to 3.0 wt%; titanium metal is present at a concentration of from 0.38 to 0.95 wt%; aluminum metal is present at a concentration of from 1.5 to 1.8 wt%; potassium is present at a concentration of from 0.4 to 0.5 wt%; calcium is present at a concentration of from 1.6 to 1.8 wt%; magnesium is present at a concentration of from 0.3 to 0.5 wt%, and the balance ~~being~~ iron oxides with natural impurities.

28. (New) The ammonia synthesis catalyst according to claim 25, ~~which~~ consists essentially of iron oxides, cobalt oxide, titanium oxide, aluminum oxide, potassium oxide, calcium oxide and magnesium oxide.

29. (New) The ammonia synthesis catalyst according to claim 25, wherein the iron oxides have an atomic ratio of Fe^{2+}/Fe^{3+} of between 0.5 to 0.65.

30. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 21.

31. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 22.

32. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 24.

33. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 25.

34. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 26.

35. (New) A method of producing an ammonia synthesis catalyst, which comprises melting magnetite or a mixture of iron oxides with promoters comprising cobalt, titanium, aluminum, calcium, potassium and magnesium to form a molten mixture,

cooling the molten mixture to form a solid, and

crushing the solid to a desired particle size, to obtain the ammonia synthesis catalyst according to claim 27.

36. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 21.

37. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 22.

38. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 24.

39. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 25.

40. (New) In a process for the catalytic synthesis of ammonia, wherein H_2 and N_2 are contacted with an ammonia synthesis catalyst to catalyze the reaction of H_2 and N_2 to form ammonia, the improvement which comprises using as said ammonia synthesis catalyst the catalyst of claim 26.